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AUTHOR Imhof, Margarete
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ABSTRACT

Auditory information processing, or listening in oral discourse, can be carried out in various ways since its underlying goals are not per se clearly defined and depend on the listening context. A strategy is a global representation of the means of reaching a goal. The concern of the current study was placed on the strategy level rather than on the skills level. The investigation tested the efficiency of metacognitive strategies in authentic listening situations to ensure the ecological validity of the results. Using a highly structured self-observation scheme which was to be administered stepwise, the amount of intrusion by the self-observation task should be controlled. A total of 42 education students participated. During class sessions, participants were informed about listening strategies and asked to apply them in two authentic listening situations. They obtained self-observation logs which guided them through the listening situation, collecting comparative data for the perception of the listening process in the neutral and the treatment condition. Interest monitoring, asking pre-questions, and elaborate techniques were found to substantially facilitate listening. Listeners reported that they processed the material more open-mindedly and more comprehensively. They also made the point that these strategies supported allocating and sustaining attention, intensified understanding, and improved information retention. Findings suggest that the perceived qualities of auditory information processing can be enriched by strategic mental activities which are tied into the listening process. (Contains 13 tables of data and 55 references; a self-observation log is attached.) (NKA)

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How to Monitor Listening More Efficiently: Meta-Cognitive Strategies in Listening.

by Margarete Imhof

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Dr. Margarete Imhof
Johann Wolfgang Goethe-Universität
Frankfurt am Main/Germany

How to Monitor listening more efficiently: Meta-Cognititve strategies in listening

The Use of Strategies in Auditory Information Processing within Discourse Comprehension

Auditory information processing or listening in oral discourse can be carried out in various ways, since its underlying goals are not per se clearly defined and depend very much on the actual listening context, e.g., degree of speaker-listener collaboration involved (Rost, 1990), and on the individual's listening objectives. Typically, any listener would have a choice of how to go about this rather fuzzy task of listening and may, consciously or not, choose an (adequate) way of action or a strategy (Imhof, 1998) to approach this task. Van Dijk and Kintsch (1983, p. 64) define: "... a strategy is the idea of an agent about the best way to act in order to reach a goal." They proceed: "...a strategy is a global representation of the means of reaching a goal" (p. 65). Whereas a strategy describes the mental representation of the sequence of actions, selecting actual patterns of behavior matching with these strategic ideas would take place at the skill level. The concern of the current study is placed on the strategy level rather than on the skills level.

Van Dijk and Kintsch (1983) have proposed and others have followed (Graesser, Millis, & Zwaan, 1997; Weaver, Mannes, & Fletcher, 1995) to work from a general model of discourse comprehension which is based on the assumption of a number of repeated sequential steps that rely largely on the existing forms of knowledge representation (Kintsch, 1988). Discourse comprehension is best described as series of intertwined construction and integration processes. These include both bottom-up and top-down processes, such as perception of the surface code of a written or an oral text, establishing a mental representation

of the language input and constructing a situational model of the overall meaning which is being communicated (Kintsch, 1989a) by relating it to prior knowledge and situative, context-specific expectations and by integrating it into existing and situatively evoked schemata. The processing characteristics depend on a number of variables, including context variables, e.g., setting (Perfetti, Rouet, & Britt, 1999), time structure, demand characteristics (Narvaez, van den Broek, & Barrón Ruiz, 1999; Wiley & Voss, 1999), content-related variables, e.g., prior domain-specific knowledge (Kintsch, 1989b; Kintsch & Franzke, 1995; Kintsch & Kintsch, 1995), shared world knowledge of the communicators (Clark, 1996), personal interest and goals (Graesser, Singer, & Trabasso, 1994), induced perspective (Anderson & Pichert, 1978; Pichert & Anderson, 1977; Hähnel & Rinck, 1999), code-related variables (Schnotz & Bannert, 1999; Lowe, 1998), and personal variables, such as power relation or power-relations (Thimm & Kruse, 1993). The quality and the quantity of these steps determine the overall level of processing. In light of this fact, it can therefore be assumed that listening activities are at least partially under the strategic control of the listener (Narvaez, van den Broek, & Barrón Ruiz, 1999).

Strategies in oral discourse comprehension come into the play in two different phases of the communication process: First of all, a person would need to make the decision to participate in oral discourse and to make an effort to actually listen. This implies that a person has or creates a purpose for listening, e.g., to listen for information, for entertainment, or to build or refresh a personal relationship. As has been shown for reading, it may be plausible to assume that individuals can distinguish between these situations and the implicated cognitive demands (R. F. Lorch, Klusewitz, & E. P. Lorch, 1995). In any case, a person would need to use strategies which are related to motivational and executive functions, such as attention regulation, time management, volitional and metacognitive control. Measures taken on these levels would be categorized as supporting strategies (Friedrich & Mandl, 1992, p. 8f.).

Once a person has become involved in oral discourse, her or she would need to decide on strategies resulting in the appropriate processing and storing of the input, such as summarizing, mapping, networking, relating the discourse information to prior experience, integrating the new information into the exisiting knowledge structure, memorizing. These measures would be called primary strategies (Friedrich & Mandl, 1992, p. 8). These strategies have been explored mainly in the context of learning situations.

The effectiveness of metacognitive or self-monitoring strategies for information processing and knowledge acquisition has been widely demonstrated. Different forms of learning strategies and methods to teach these strategies have by now certainly become part of the rock-bottom knowledge of educational psychology which can be found in many textbooks in the field (see e.g., McCormick & Pressley, 1997; Wakefield, 1996). On closer inspection, however, one finds that the empirical basis has some blind spots:

1) There is a considerable body of research on the efficiency of metacognitive strategies in the processing of written information. Generalization of conclusions from these investigations to the area of listening, however, needs to be backed up by further research because the specific demands of a listening situation have not systematically been taken into account. The transitory character of speech, the problem of following the speaker's rate of information production, and demands on selective and sustained attention all may influence the mental workload and the availability of attentional capacity during listening. On a practical level, some strategic activities as they are discussed in the context of text comprehension (Pressley, & Afflerbach, 1995; Rickheit, & Strohner, 1999) are simply not compatible with listening, e.g., taking longer time for intake or reinstating information by going back a few pages. It is, therefore, by no means self-evident that metacognitive strategies are equally applicable in reading and in listening.
2) Strategies for improving knowledge acquisition and information processing have been widely investigated with a focus on evaluating efficiency in terms of performance-

oriented criteria, such as measures of retention and problem-solving transfer. There is no doubt, of course, that this kind of evaluation of cognitive processing strategies is a valid approach; we would not use or teach certain strategies unless we had sound reasons to believe that they are worth the effort. Nevertheless, it is unclear what effects using metacognitive strategies would have on the listening process, i.e., what kind of workload is put on a listener, and how far the listener's attentional resources and self-monitoring competencies are stretched. For the purpose of the study presented in this paper, three different metacognitive strategies were selected for closer investigation: interest monitoring, asking pre-questions, and elaborative techniques.

Interest Monitoring

The relationship between topic interest and learning is illustrated by an experiment (Schiefele & Krapp, 1996) in which university students were presented with expository text on the "psychology of communication", a topic of which they had very little prior knowledge. Before the students read the text, their interest in the topic was assesed by a pre-test. No mention of a subsequent test was made at this point. After the reading phase, process variables, such as arousal level, intensity of attention, elaboration, and highlighting and margin notes, were measured. Finally, the students were administered a free recall test that required them to reproduce the content of what they had read as completely as possible. Their answers were evaluated according to the number of main ideas and number of idea units accurately recalled.

The results showed two interesting points. First, the numbers of main ideas and idea units recalled were both significantly related to the ratings of topic interest, whereas neither prior knowledge nor intelligence seemed to systematically influence the results. Second, the effect of topic interest on recall was associated with significant changes in process variables, such as general arousal, attention, annotating, and note-taking. Schiefele and Krapp (1996)

also found a mediating effect of arousal on recall, and suggest that the higher general activation induced by greater interest increased the processing capacity available for the task (Kahneman, 1973).

From this type of experiment, it has been concluded that topic interest changes the quality and the quantity of information processing. Krapp (1993) assumes that interest determines a person's motivational orientation and willingness to apply higher-level learning strategies. Topic interest facilitates a person's use of metacognitive skills, sustained attention, richer information-processing capacities, general arousal, and positive emotions.

A listener can do little to change the attractiveness of the material or of the speaker, but he or she can reflect on his or her subjective perception and evaluation of the topic. Interest is determined by a set of emotional, evaluative, and cognitive decisions that a person has made on a topic (Krapp, 1992). Active interest building can be initiated by redefining the current person-topic relation on the emotional, evaluative, or cognitive level. The question is how individuals build interest in a topic and what behavioral and cognitive effects ensue.

Asking Pre-questions

Knowledge acquisition can be conceived of as intentional changes in the semantic and propositional network of the learning mind (McCormick & Pressley, 1997). A prerequisite for modification of the learner's propositional network is the "awareness of knowledge lacks" (Bereiter, & Scardamalia, 1989, p. 375). Intentional and meaningful learning can take place more smoothly when a person has identified a specific learning goal. Bereiter and Scardamalia (1989) report an experiment in which students were asked, prior to the introduction of a new topic, what they knew, did not know, and wanted to know about a particular topic. Summarizing their findings, the authors wrote that "children's responses to text information relevant to their 'Don't know' questions was at a higher level than their average response to other items of text information. Thus, having previously recognized a

knowledge lack of a specific sort appeared to result in deeper processing of information relevant to remedying that lack" (p. 376). This effect may also have been due to the fact that pre-questions not only define the knowledge gap, but also activate prior knowledge so that new information can be tied into the existing semantic network more reliably.

King (1994) used a similar approach, but tested university students. Two groups of students worked with a set of guiding questions for a lecture. Participants in the experimental group generated their own questions using a set of generic question stems, whereas participants in the control group used the same questions that had been previously generated by students in a similar course. In a subsequent test on the lecture consisting of multiple-choice and short-answer questions, the students who had generated their own questions outperformed those who were provided with others' questions. The same pattern of results emerged when students were guided to form their questions according to a specific heuristic pattern (King, 1992). The beneficial effect of question asking, however, needs to be viewed under the stipulation that a certain amount of prior knowledge and acknowledgement of knowledge lacks is required (Miyake, & Norman, 1979).

Pre-questions asked prior to text presentation serve to filter incoming information, preparing the mind to absorb information that seems relevant in light of previously asked questions (Pichert, & Anderson, 1977). Pre-questions define the listener's expectations and thus activate existing schemata and create a structure for the integration of incoming information. Kintsch (1988) suggests in his construction-integration model of discourse comprehension that structure is not prestored, but generated in the context of the task for which it is needed (p. 164). It is assumed that this effect is even stronger in listening than in reading, since listeners have to economize mental resources. Building a mental model of the text (i.e., text representation) and creating an adequate situational model (Kintsch, 1989a) impose a high workload on the central executive, which monitors information processing (Baddeley, 1994; Gathercole, & Baddeley, 1993). Asking pre-questions can structure input

and aid people in deciding if a piece of information is relevant or marginal, thus facilitating inference and the integration of new information into the existing semantic or propositional network. Given the generally observed scarcity of student questions and the fact that asking constructive questions depends on many personal and situative variables (Flammer, 1981; Ryan & Pintrich, 1997), however, it remains to be seen if listeners accomplish this task.

Elaborative techniques

Elaborative techniques can be defined as a class of processing activities that put new information into a wider perspective by relating it to prior knowledge, creating interrelations between individual pieces of information and stimulating inferences. Elaborations are based on a person's prior experiences and knowledge structures (van der Meer, 1996). Meaningful elaborations make new information more memorable by enhancing the access codes available for retrieval (Stein, Morris, & Bransford, 1978).

Elaborative activities take a variety of forms, ranging from mental imagery to adding critical comments and reframing the information in a new context (Mandl, Friedrich, & Hron, 1994). It has been observed that learners instructed to use elaboration strategies are able to process information at a deeper level and are better at transforming and applying information in a problem-solving context (Mayer, 1980). There is also some evidence that different types of elaboration, such as creating personal examples, contrasting the target concepts, and expanding on the target concepts (Hamilton, 1997), and verbal vs. visual elaborations (Willoughby, Wood, Desmarais, Sims, & Kalra, 1997), are related to specific outcome characteristics.

The question posed in this paper is: Which aspects of the active listening process are affected by the use of specific metacognitive strategies (interest management, asking pre-questions, elaborative techniques), and to what extent? Building on the results from a previous study which showed that the selected metacognitive activities are in principle compatible with

listening tasks, the objective of this investigation was to consider more closely, if these effects can be generalized on a larger sample and how these effects can be described in more detail.

The objective of this investigation was to test the efficiency of metacognitive strategies in authentic listening situations in order to ensure ecological validity of the results. Therefore it seemed that self-observation methodology was the best choice to collect data in everyday listening situations which were both relevant and familiar to the participants. The advantage of this methodology is obviously that the reported perceptions need not be put down to artificial goals that were induced by an experimenter. The problem remains, however, that the self-observation task as such might influence the cognitions in the situation and reinforce the construction of expectations and hypotheses which influence the experience of the participants. Using a highly structured self-observation scheme which was to be administered stepwise, the amount of intrusion by the self-observation task should be controlled.

Empirical Study

Method

Participants

All participants were regular attendants of a listening class. Completing self-observation tasks and keeping a listening log were part of the course requirements. All students were enrolled in either a teacher-training program or a general education program. Papers were handed in anonymously with a personal code. A total of n = 42 students participated in the study. 82 self-observation logs were handed in on interest monitoring strategies, 84 on pre-questions, and 74 on elaborative techniques.

Instructions

During class sessions, participants were informed about listening strategies and asked to apply them in two authentic listening situations. They obtained self-observation logs which guided them through the listening situation, collecting comparative data for the perception of the listening process in the neutral and the treatment condition. It was pointed out that the study was not meant as an assessment of listening or information-processing ability in order to obtain data unaffected by extrinsic motivation (e.g., the desire to perform well; Roberts & Vinson, 1998). Participants were encouraged to report both advantages and disadvantages of the strategies.

The three strategies under investigation were presented individually during consecutive weeks to prevent mental overload and interference between strategies. The instructions for self-observation of three different strategies were introduced in the following manner:

Interest monitoring. A class session was prepared on the interrelation between interest and knowledge. Using a number of exploratory exercises, the class discussed the idea that personal interest in a topic depends on the amount of domain-related prior knowledge (Brownell, 1996). Research findings on the relations between topic interest and recall were presented (Schiefele, 1996; Schiefele & Krapp, 1996). Working in small groups, participants then shared personal experiences regarding topics and listening situations in which they were rather uninterested and how this posed problems for them. Each subject picked one situation in which to explore the effects of interest on knowledge acquisition in the course of the following week. All other aspects of the self-observation task were unconstrained (e.g., whether it was conducted in a private vs. professional situation, personal vs. medial communication).

Generating pre-questions. Participants attended a class session on pre-questions during which the results of empirical work on student-generated questions were presented and

discussed (Bereiter, & Scardamalia, 1989; King, 1994; Kintsch, 1989a, 1996). Small groups explored and discussed exemplary realizations of pre-questions on a variety of topics. Participants were then asked to prepare pre-questions for a self-selected listening situation.

Elaborative techniques. A number of possible elaboration techniques were presented in class (Ballstaedt, Mandl, Schnotz, & Tergan, 1981; Mandl, Friedrich, & Hron, 1994; van der Meer, 1996). Using a piece of instructional text, students tried out several of these techniques and discussed their value. They were then instructed to use any of these strategies in a real listening situation and to report the effects on the listening process.

Material

Drawing on results from an earlier investigation (Imhof, in press), three standard self-observation logs, one for each type of strategy, were developed. In course of the previous study, which used self-observation data in an open format, effects of strategy use had been categorized. As it turned out, different aspects of the listening process were affected depending on the strategy that was applied. Based on these results, closed items were constructed to present all participants with the full scope of identified effects and to elicit pertaining ratings for all three strategies under consideration. The self-observation logs guided participants through several sections. First, an introduction was given, including the instruction to select and describe in their own words a challenging listening situation. In the second section, participants were asked to assess their perception of the listening situation along a number of statements which had to be rated on a four-point scale for degrees of agreement (1 = totally agree, 2 = partly agree, 3 = partly disagree, 4 = totally disagree). As a consequence of the results of the pilot study, the items in this section varied for the three strategies, because slightly different aspects of a listening situation were reported to be salient in different contexts. The next part of the self-observation log provided space to specify the actual instantiations of each strategy, e.g., what exactly were the pre-questions that a person had worked with? What kinds of activities did a person engage in to raise interest for an

"uninteresting" topic? (For interest monitoring strategies, there were also provided closed items in this section.) How exactly did a person elaborate on the material presented in the listening situation? The final section was to be filled out after completion of the listening situations. For the review of this situation under treatment conditions, the identical items were used as in the second section, except for that the verb tenses had been transformed into the past tense (see appendix for a self-observation logs).

Results

Results are reported separately for the three strategies under consideration. For each strategy, the responses to the closed items in the neutral condition were factor analyzed (principal component analysis) to explore the underlying structure of the perception of the listening task. Based on these data, individual scores were summed up for all items loading on each factor both in the neutral and in the treatment condition. Participants who had missing data in any one item pertaining to a factor were excluded from further processing. (This stipulation causes varying degrees of freedom for the respective F-tests.) Analysis of variance for repeated measures was administered to these sum scores to check for differences between conditions. In case the comparison of summed scores under the two conditions yielded significant differences, values on the item-level were tested post-hoc with the Wilcoxon test for dependent samples. All statistic procedures were carried out on SPSS for WINDOWS 8.0.

Interest monitoring

82 self-observation logs could be included into the data processing. To begin with, a look should be taken at the kinds of activities participants engaged in in order to increase their interest in a topic which they would consider "uninteresting" for whatever reason. Participants approached this task from different angles (see table 1).

Table 1

Interest monitoring activities prior to engaging in a listening situation

Interest monitoring activity	n*	%
I tried to be open-minded toward the topic.	78	95%
I made a conscious effort to focus attention.	75	92%
I made myself perceive my current state of mind (being tired, feeling motivated or bored).	73	89%
I made an effort to understand the structure of the presentation.	70	85%
I made an effort to identify my negative attitude and bias.	64	78%
I thought about how aspects of the topic may become relevant for my personal life.	63	77%
I made an attempt to understand why others find this topic interesting.	55	67%
I tried to make it clear to myself how listening could be useful in this particular situation.	54	67%
I had critically questioned my prejudice and bias.	52	63%
I tried to take the speaker's perspective.	46	56%
I got actively involved in the situation.	33	40%
I determined myself to take detailed notes.	32	39%
I discussed the topic with friends and fellow-students.	32	39%
I studied the topic in the literature.	19	23%

*out of a total of n = 82 self-observation logs.

The majority of participants reported that they actively reframed their attitudes and patterns of behavior in order to create a rationale for listening. Participants mentioned that they had made an effort to be more open-minded toward the topic (n = 78, 95%), to identify negative attitude and bias (n = 64, 78%), and to critically question the acquired prejudice and bias (n = 52, 63%). Another way to break up long-held attitudes was to view the topic from the speaker's perspective (n = 46, 56%) or to make an attempt to understand why others might find this particular topic interesting (n = 55, 67%). Participants also tried to look ahead, to consider why it could be useful to listen in this particular situation (n = 54, 67%), and to

identify relevant aspects in the topic for their personal lives (n = 63, 77%). To raise interest, some participants made themselves focus attention more closely on the listening situation (n = 75, 92%) and determined themselves to pay special attention to the structure of the presentation (n = 70, 85%), to take detailed notes (n= 32, 39%), and to get more actively involved in the situation. They also prepared for listening by taking care of personal needs, e.g., sleep, (n = 73, 89%). Other interest-raising activities included drawing on additional resources, e.g., discussing the topic with friends and fellow-students (n = 32, 39%), and researching in the literature (n = 19, 23%).

Table 2

Factor loadings and communalities for items describing aspects of the listening situation in the context of interest monitoring activities

Aspects of the listening situation in the context of interest monitoring	I*	II	III	h^2
I feel attracted to the topic.	**.772**			.602
I believe that this topic is of little importance in general.	**-.748**			.611
This topic is important to me personally.	**.715**			.626
I can focus attention when listening to this topic.	**.635**			.502
I can see a relationship between aspects of this topic and my personal experience in life.	**.628**			.418
I feel rather uncomfortable in this listening situation.	**-.463**	.395		.371
I am irritated by the way of how the speaker delivers the presentation.		**.858**		.742
I tend to feel bored by this particular speaker.		**.772**		.670
The attitude toward the speaker affects my willingness to listen.		**.551**		.393
The listening situation is disturbed by outside factors (e.g., noise).		.424		.181
The topic is beyond me.			**.908**	.838
I believe, I have insufficient knowledge about this topic.			**.873**	.798

* factor loadings in bold print are considered substantial according to the Fürntratt criterion $a^2/h^2 > .50$; factor loadings lower than .30 are not printed.

Factor analysis of the responses to closed items describing the perception of the listening situation in the neutral condition yielded three components or dimensions of perception (see table 2) which were interpreted as

I personal relevance and involvement

II speaker – listener relationship

III assessment of challenge.

Both the sampling adequacy and the measures for individual items adequacy were satisfactory (KMO value for sampling adequacy = .66, df = 66, $p < .001$; MSA-values for individual items ranged from .46 to .81, with only two items scoring lower than .50). The three factors accounted for 56% of the total variance in the data. One item [item 12: "The listening situation is disturbed by outside factors (e.g., noise)."] does not carry a substantial loading for any factor.

As was mentioned before, sum scores for both conditions were computed based on the item groupings for the factors. Results of analysis of variance for repeated measures show that substantial changes had occured on all three dimensions. Perception of personal relevance and involvement had been significantly influenced by interest monitoring activities ($F_{1,77} = 27.59$, $p < .001$). The corresponding effect size measure $eta^2 = .26$ stands for a large treatment effect. This global trend is reflected in the responses individual items (see table 3).

As a consequence of interest monitoring activities, participants felt more attracted to the topic ($Z = -4.51$, $< .001$) and rated both personal ($Z = -2.61$, $p < .01$) and general importance ($Z = -3.44$, $< .01$) higher than in the neutral condition. They were better able to see the relevance of the topic for their own lives ($Z = -3.82$, $< .001$), felt more comfortable with the listening situation ($Z = -2.82$, $< .01$), and found that they could focus attention more easily ($Z = -3.85$, $< .001$).

Table 3

Personal relevance and involvement in the listening situation in the context of interest monitoring activities in the neutral and in the treatment condition

Aspects of personal relecance and involvement in the listening situation in the context of interest monitoring	neutral		treatment			
	M	*SD*	*M*	*SD*	*Z*[*]	*p*
I feel attracted to the topic.	3.06	.88	2.62	.86	-4.51	< .001
I believe that this topic is of little importance in general.	2.66	.89	2.99	.93	-3.44	< .01
This topic is important to me personally.	3.21	.91	2.94	.91	-2.61	< .01
I can focus attention when listening to this topic.	2.95	.74	2.53	.87	-3.85	< .001
I can see a relationship between aspects of this topic and my personal experience in life.	3.15	.98	2.80	1.04	-3.82	< .001
I feel rather uncomfortable in this listening situation.	2.82	1.01	3.08	1.04	-2.82	< .01

[*]Z-value for Wilcoxon test

Interest monitoring activities also led to a more favorable perception of the speaker – listener interaction ($F_{1,77} = 7.70$, $p < .01$). This difference achieved a medium effect size of $eta^2 = .091$. On the item level (see table 4) it could be found that listeners felt less bored by the speaker ($Z = -4.19$, $p < .001$) and were less irritated by the manner of the presentation ($Z = -2.10$, $p < .05$).

Table 4

Speaker – listener relationship in the listening situation in the context of interest monitoring activities in the neutral and in the treatment condition

Aspects of the speaker – listener relationship in the listening situation in the context of interest monitoring	neutral		treatment			
	M	*SD*	*M*	*SD*	*Z*[*]	*p*
I am irritated by the way of how the speaker delivers the presentation.	2.15	1.13	2.32	1.06	-2.10	< .05
I tend to feel bored by this particular speaker.	1.95	.88	2.40	1.07	-4.19	< .001
The attitude toward the speaker affects my willingness to listen.	2.18	1.08	2.05	1.08	-1.14	n.s.

[*]Z-value for Wilcoxon test

Listeners in the treatment condition still felt, however, that their attitudes toward the speaker have an impact on their willingness to listen to this person. Interest regulating activities did also not affect distractability from external sources.

Interest monitoring had a substantial impact on the perception of the cognitive challenge of the listening task ($F_{1,79} = 14.55$, $p < .001$, $eta^2 = .16$). As it turned out (see table 5), participants were more acutely aware of their pertaining prior knowledge ($Z = -3.53$, $p < .001$) and considered the topic not so much "beyond" them as in the neutral condition ($Z = -2.59$, $p < .01$).

Table 5

Assessment of challenge in the listening situation in the context of interest monitoring activities in the neutral and in the treatment condition

Aspects of the assessment of challenge in the	neutral		treatment			
Listening situation in the context of interest monitoring	*M*	*SD*	*M*	*SD*	*Z*[*]	*p*
The topic is beyond me.	2.84	.97	3.06	1.06	-2.59	< .01
I believe, I have insufficient knowledge about this topic.	1.93	1.00	2.35	1.06	-3.53	< .001

[*]Z-value for Wilcoxon test

Pre-questions

84 self-observation logs were returned for this part of the study focussing on pre-questions. Participants reported up to 19 questions they had formed before entering the listening situation with the median at five questions. The content of the questions covered a wide range of aspects. In terms of the taxonomy of questions proposed by Graesser, Person, and Huber (1992), questions for concept completion (Who? What? When? Where?; n = 14) and feature specification (What attributes does X have?; n = 10) occurred most frequently. Instrumental and procedural questions (e.g., How does X work? What was the plan of action?; n = 6) and definition inquiries (e.g., what does X mean? What is the superordinate category of X?; n = 7) were also reported rather often. On the whole, there was no systematic trend

concerning the content of the pre-questions. The type of questions asked may rather depend on the actual topic and personal experience and preferences than on strategic considerations.

Factor analysis of the items representing aspects of the listening situation which were suscpetible to change after listing pre-questions yielded three components (see table 6).

I recognition of structure and integration of information

II processing characteristics

III motivation and interest

Table 6

Factor loadings and communalities for items describing aspects of the listening situation in the context of pre-questions

Aspects of the listening situation in the context of pre-questions	I*	II	III	h^2
I can find an orientation in the presentation.	**.810**			.743
I can follow the line of arguments.	**.779**			.830
It is easy for me to understand new information on the topic.	**.775**		.366	.758
I understand the outline of the presentation.	**.736**			.569
I can see how the information corresponds to what I already know about this topic.	**.645**			.456
I believe, I can retain new information rather easily.	**.633**	.340	.323	.621
I can structure my notes.	**.566**	.544		.626
I adhere to my own questions while following the presentation.		**.778**		.642
I can sustain attention during the presentation.		**.729**		.675
I can actively think about the presentation and its content.		**.648**		.679
It is important for me to learn something about this particular topic.		.390	**.779**	.759
I feel attracted to the topic.		.506	**.729**	.797
I can actively participate in the discussion.			**.583**	.463
I am aware of my knowledge gaps on this topic.			**-.530**	.330

*factor loadings in bold print are considered substantial according to the Fürntratt criterion $a^2/h^2 > .50$; factor loadings lower than .30 are not printed.

Sample adequacy was meritorious (KMO = .84, df = 91, $p < .001$). Two items were excluded from factor analysis due to poor MSA – values (item 10: 'I approach the presentation with critical expectations.'; item 15: 'I miss some information because of my biased expectations.'). The MSA – values for the remaining items ranged from MSA = .58 to MSA = .91. The three factors explain 64% of the total variance in the data.

Asking pre-questions prompted significant changes in all three factors that had been identified. Recognition of structure and integration of information was substantially improved by pre-questioning activities ($F_{1,73} = 52.76$, $p < .001$, $eta^2 = .42$). On the item level (see table 7), this means that participants had fewer orientation problems ($Z = -3.70$, $p < .001$), could better follow the presentation ($Z = -5.32$, $p < .001$), and were more aware of the outline of the presentation ($Z = -3.74$, $p < .001$). After pre-questions, listeners found it easier to integrate the new information ($Z = -4.83$, $p < .001$), to compare prior knowledge and new information more competently ($Z = -4.37$, $p < .001$), and to retain the new information more efficiently ($Z = -4.35$, $p < .001$). The increased awareness of structure was also reflected by the style of note-taking ($Z = -3.36$, $p < .001$).

Table 7

Recognition of structure and integration of information in the context of pre-questions in the neutral and in the treatment condition

Aspects of recognition of structure and integration of information in the context of pre-questions	neutral		treatment			
	M	*SD*	*M*	*SD*	Z^*	*p*
I can find an orientation in the presentation.	2.34	.74	1.91	.77	-3.70	< .001
I can follow the line of arguments.	2.33	.87	1.74	.80	-5.32	< .001
It is easy for me to understand new information on the topic.	2.39	.89	1.85	.79	-4.83	<.001
I understand the outline of the presentation.	2.11	.80	1.78	.77	-3.74	< .001
I can see how the information corresponds to what I already know about this topic.	2.22	.93	1.73	.86	-4.37	< .001
I believe, I can retain new information rather easily.	2.31	.85	1.83	.78	-4.35	< .001
I can structure my notes.	2.29	.82	1.95	.97	-3.36	< .001

*Z-value for Wilcoxon test

The impact of pre-questions on processing characteristics was also visible ($F_{1,77}$ = 13.79, $p < .001$, $eta^2 = .15$). Participants reported (see table 8) improved sustained attention ($Z = -3.67$, $p < .001$), a higher level of mental activity during listening ($Z = -4.65$, $p < .001$) and a better attentional focus on the presentation ($Z = -2.96$, $p < .01$).

Table 8

Processing characteristics in the context of pre-questions in the neutral and in the treatment condition

Aspects of processing characteristics in the context of pre-questions	neutral		treatment			
	M	*SD*	*M*	*SD*	*Z**	*p*
I adhere to my own questions while following the presentation.	2.20	.83	1.88	.76	-2.96	< .01
I can sustain attention during the presentation.	2.29	.82	1.87	.80	-3.66	< .001
I can actively think about the presentation and ist content.	2.18	.76	1.71	.78	-4.65	< .001

*Z-value for Wilcoxon test

Furthermore, asking pre-questions had a substantial effect on the motivation and interest with which participants approached the listening situation ($F_{1,79} = 33.47$, $p < .001$, $eta^2 = .30$). Participants indicated (see table 9) that it had become more important to them to

Table 9

Motivation and interest in the context of pre-questions in the neutral and in the treatment condition

Aspects of motivation and interest in the context of pre-questions	neutral		treatment			
	M	*SD*	*M*	*SD*	*Z**	*p*
It is important for me to learn something about this particular topic.	1.71	.83	1.54	.74	-2.32	< .05
I feel attracted to the topic.	1.88	.88	1.68	.81	-2.44	< .05
I can actively participate in the discussion.	2.85	1.01	2.58	1.18	-2.92	< .001
I am aware of my knowledge gaps on this topic.	1.57	.68	1.66	.72	-.98	n.s.

*Z-value for Wilcoxon test

learn something about the topic ($Z = -2.32$, $p < .05$) and that they were more attracted to the topic ($Z = -2.44$, $p < .05$). Increased motivation was transformed into action, since participants also state that they were more actively involved in the pertaining discussion ($Z = -2.92$, $p < .01$), though they acknowledged their knowledge gaps equally in both conditions ($Z = -.98$, $p > .05$).

Elaborative techniques

The 74 self-observation logs contained quite a variety of different instatiations of elaborations. The three most frequently reported elaborative techniques were mental imagery ($n = 54$), systematic activation of prior knowledge ($n = 47$), and relating the material to personal experience ($n = 38$). Next in line were benchmarking information for critical review ($n = 22$), paraphrasing the wording of the speaker ($n = 21$), and creating ideas for practical application of the information ($n = 20$). Some participants elaborated on the information by making emotional judgments ($n = 16$), using mnemonics ($n = 12$), relating the new information to their prior knowledge ($n = 9$), and anchoring it in the situation ($n = 8$).

Factor analysis of the items assessing the perception of the listening situation revealed four components or dimensions (see table 10). Measures for sampling adequacy and items adequacy turned out to be adequate (KMO = .83, df = 91, $p < .001$; MSA-values above .56 up to .89). The factors extracted from this set of items explained 68% of the variance in the data.

I monitoring information processing

II structuring and summarizing information

III situative interferences

IV internal interferences

Table 10

Factor loadings and communalities for items describing aspects of the listening situation in the context of elaborations

Aspects of the listening situation in the context of elaborations	I*	II	III	IV	h^2
I can actively think about the presentation and ist content.	**.856**				.793
I believe that I retain the most important information.	**.778**				.696
I can focus attention on the presentation.	**.726**				.594
During listening, I can think critically about the content of the presentation.	**.710**				.543
I can make the connection between the new information and my prior knowledge.	**.702**				.540
I have a clear idea about what about this topic is important to me.	**.668**				.535
I can follow the presentation easily.	**.665**	.525			.737
I can actively participate in the discussion.	**.615**		.335		.494
I can take detailed notes.		**.877**			.790
I can take structured notes.	.303	**.825**			.773
I can summarize what I have heard.	.539	**.650**			.768
I would not let the personal characteristics of the speaker distract me from the presentation.			**.864**		.776
I believe I would not let me disturb by others.			**.641**	.480	.649
My own thoughts distract me from what is being said.				**-.905**	.841

*factor loadings in bold print are considered substantial according to the Fürntratt criterion $a^2/h^2 > .50$; factor loadings lower than .30 are not printed.

An impact of elaborative activities on the components of the listening situation was detected for the first three factors. Internal interferences were not affected by these activities. Results show that monitoring information processing was considerably improved in the

treatment condition ($F_{1,66} = 48.06$, $p < .001$, $eta^2 = .42$). Participants found that they had a more efficient mental representation of the current presentation ($Z = -4.79$, $p < .001$) and that they could follow the line of arguments more easily ($Z = -5.26$, $p < .001$) when they were using elaborations. These techniques also supported sustained attention ($Z = -3.63$, $p < .001$). In addition, participants reported more active involvement in the discussion ($Z = -2.76$, $p < .01$) and a higher level of critical thinking ($Z = -3.60$, $p < .001$) in the treatment condition. They had a clearer idea of what was important to them ($Z = -3.28$, $p < .001$) and believed that they could better retain the relevant information ($Z = -5.06$, $p < .001$) and relate it to their prior knowledge more swiftly ($Z = -3.80$, $p < .001$) (see table 11).

Table 11

Monitoring information processing in the context of elaborations in the neutral and in the treatment condition

Aspects of monitoring information processing in the context of elaborations	neutral		treatment			
	M	*SD*	*M*	*SD*	Z^*	*p*
I can actively think about the presentation and its content.	2.22	.86	1.66	.70	-4.79	< .001
I believe that I retain the most important information.	2.16	.76	1.61	.78	-5.06	< .001
I can focus attention on the presentation.	2.23	.82	1.80	.79	-3.63	< .001
During listening, I can think critically about the content of the presentation.	2.59	.89	2.14	.91	-3.60	< .001
I can make the connection between the new information and my prior knowledge.	2.18	.84	1.73	.88	-3.80	< .001
I have a clear idea about what about this topic is important to me.	2.20	.86	1.82	.82	-3.28	< .001
I can follow the presentation easily.	2.27	.78	1.72	.80	-5.26	< .001
I can actively participate in the discussion.	2.97	.99	2.65	1.21	-2.76	< .001

*Z-value for Wilcoxon test

Elaborations influenced the way in which participants structured and summarized the information ($F_{1,70} = 25.92$, $p < .001$, $eta^2 = .29$). In the treatment condition, listeners

considered their notes more structured ($Z = -2.40$, $p < .05$) and more detailed ($Z = -3.53$, $p < .001$), and they were more confident that they could summarize the main ideas of what they had just listened to ($Z = -5.37$, $p < .001$) (see table 12).

Table 12

Structuring and summarizing information in the context of elaborations in the neutral and in the treatment condition

Aspects of structuring and summarizing information in the context of elaborations	neutral		treatment			
	M	*SD*	*M*	*SD*	*Z*[a]	*p*
I can take detailed notes.	2.79	.88	2.43	.96	-3.53	< .001
I can take structured notes.	2.45	.91	2.15	.90	-2.40	< .05
I can summarize what I have heard.	2.68	.80	1.94	.83	-5.67	< .001

[a]Z-value for Wilcoxon test

In addition to this, situative interferences could be controlled when elaborative techniques were used ($F_{1,70} = 18.93$, $p < .001$, $eta^2 = .21$). This meant, e.g. (see table 13), that participants perceived fewer intrusions from external sources ($Z = -3.71$, $p < .001$) and experienced fewer distractions by speaker characteristics ($Z = -2.95$, $p < .01$).

Table 13

Situative interferences in the context of elaborations in the neutral and in the treatment condition

Aspects of situative interferences in the context of elaborations	neutral		treatment			
	M	*SD*	*M*	*SD*	*Z*[a]	*p*
I would not let the personal characteristics of the speaker distract me from the presentation.	2.36	.93	2.03	.91	-2.95	< .01
I believe I would not let me disturb by others.	2.45	.88	2.01	.82	-3.71	< .001

[a]Z-value for Wilcoxon test

Discussion

In the empirical study using guided self-observation in authentic listening situations, it was investigated how using metacognitive or self-monitoring strategies has an impact on the

perception of the characteristics of a listening process. Interest monitoring, asking pre-questions, and elaborative techniques were found to substantially facilitate listening. Listeners reported that they processed the material more open-mindedly and more comprehensively. They also made the point that these strategies supported allocating and sustaining attention, intensified understanding, and improved retention of the information.

Based on these results, it can be concluded that the perceived qualities of auditory information processing can be enriched by strategic mental activities which are tied into the listening process. Creating a rationale for listening by intentionally monitoring interest in a topic, listing a set of questions before approaching a listening task, and elaborating on the material during listening supports the activation of prior knowledge, the construction of a mental model of the orally presented text, and the integration of the material into existing knowledge structures. Strategic activities reframe the listening task and put it in perspective which may lead to increased motivational activation and more comprehensive processing.

The strategies under consideration in this study are rather general and leave ample space for individual adaptations. This is considered to be a crucial asset, because listeners can and must shape the actual strategic activities according to their individual needs, e.g., to their own interests, to the cognitive demands and task characteristics of the actual listening situation, and to their level of prior knowledge. This means that each individual performs a "warming up" that matches best with their skill level thus "tuning" the psychological system for the input processing. This may facilitate active knowledge acquisition buy building on the individual knowledge structure. From here, a direct connecting line to constructivist approaches to learning can be drawn (Mayer, 1999; Phye, 1997).

Caution in interpreting the data, is approapriate, however. The effects of strategic activities had been assessed on individually perceived processing characteristics, only. There is no way to decide if the product of the information processing, as assessed in a recall test, could also be substantially improved. Research has shown that the problem with using meta-

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cognitive strategies is quite often that it takes a certain period of time before strategy use is actually reflected in substantially better product measures. Learners using their habitual, however ineffective strategies, may yield better results than learners using unfamiliar but supposedly more efficient strategies (Friedrich, 1995; Maichle, 1992), because working with new procedures may as such absorb attentional capacity and thus leave less capacity for the actual information processing. On top of this, it would be advisable to validate the reported results of the self-observation logs using additional methodological approaches.

It also needs to be borne in mind that the strategies discussed in this study are by no means a panacea for problems with learning from oral presentations. There are a few participants who did not perceive strategy use, as it was instructed in this study, as helpful. They had trouble keeping track both of the information processing and the strategic activities and felt that they were in a dual task situation with interfering cognitive demands. This may be due to a misunderstanding of the task, to insufficient prior knowledge (Miyake, & Norman, 1979), or to a lack of practice and experience with the handling of the strategies used in this study. Whatever applies, the point must be made that learners cannot just be advised to try out this or that strategy, but that they need support to find out how they can adjust the strategy to their listening behavior and skill level and to understand how strategies transfer into authentic listening situations (McCormick, & Pressley, 1997).

Still, some consequences may be safely drawn from this study: First, all three strategies under discussion, interest monitoring, asking pre-questions, and elaborative techniques are both compatible with listening and are suitable to support building individual listening skills and to enhance listening efficiency in challenging listening situations. Second, consideration should be devoted to the aspect of how to support learners to acquire procedural and conditional knowledge on metacognitive strategies in order to put them into a position to decide how and when to use which strategic activities. Third, it is rather plausible to assume that the efficiency of strategic activity depends on situative variables, such as actual listening

task, type of topic, social setting of the listening situation, and speaker characteristics, to name just the most obvious. Further research and practical experience is needed to obtain a clearer picture in this respect. Finally, it might be worth considering what the speaker could do in order to induce strategy use and to help (unexperienced) listeners to evaluate the efficiency of their strategic activities. This aspects seems to be of particular relevance for classroom situations and for teaching self-monitoring strategies for auditory information processing.

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Author note:

Dr. Margarete Imhof

Johann Wolfgang Goethe-Universität Frankfurt

Institut für Pädagogische Psychologie

Postfach 11 19 32

D-60054 Frankfurt / Main

Germany

e-mail: M.Imhof@paed.psych.uni-frankfurt.de

Date:_____

Code:_____

Instruction for self-observation during listening
(Interest-monitoring)

Select a listening situation which you feel is challenging for you because you are not really interested in the topic. Prior to entering this listening situation, try to find reasons to make this listening situation relevant and interesting for you. List your efforts to raise your interest as specifically as possible. Take a moment to reflect about how you perceive the listening situation.

Please note your perceptions on the following aspects:

A. Describe the listening situation which you selected and specify why you find this situation particularly challenging (who is the speaker, what is the context, when and where does it take place?):

Please fill in part B of the self-observation log: Why is this particular listening situation so difficult for you? Please indicate to which degree you agree with the statements listed below concerning this situation. You may add further comments on the back of the pages.

B. What attitudes and perceptions do I perceive as I listen in this situation?

		fully agree	partly agree	partly disagree	fully disagree
1.	I feel attracted to the topic.	❍	❍	❍	❍
2.	I tend to feel bored by this particular speaker.	❍	❍	❍	❍
3.	This topic is important to me personally.	❍	❍	❍	❍
4.	I believe that this topic is of little importance in general.	❍	❍	❍	❍
5.	I believe, I have insufficient knowledge about this topic.	❍	❍	❍	❍
6.	The topic is beyond me.	❍	❍	❍	❍
7.	I can focus attention when listening to this topic.	❍	❍	❍	❍
8.	I can see a relationship between aspects of this topic and my personal experience in life.	❍	❍	❍	❍
9.	I am irritated by the way in which the speaker delivers the presentation.	❍	❍	❍	❍
10.	The attitude toward the speaker affects my willingness to listen.	❍	❍	❍	❍
11.	I feel rather uncomfortable in this listening situation.	❍	❍	❍	❍
12.	The listening situation is disturbed by outside factors (e.g., noise).	❍	❍	❍	❍

Now think about measures which might be suitable to change your perception of this listening situation. Please fill in parts C and D of the self-observation log after completion of the listening situation.

C. What did I do in order to facilitate listening in this particular situation?

		fully agree	partly agree	partly disagree	fully disagree
1.	I studied the topic in the literature.	❍	❍	❍	❍
2.	I discussed the topic with friends and fellow-students.	❍	❍	❍	❍
3.	I made an attempt to understand why others find this topic interesting.	❍	❍	❍	❍
4.	I thought about how aspects of the topic may become relevant for my personal life.	❍	❍	❍	❍
5.	I determined myself to make detailed notes.	❍	❍	❍	❍
6.	I critically questioned my prejudice and bias.	❍	❍	❍	❍
7.	I tried to be open-minded toward the topic.	❍	❍	❍	❍
8.	I tried to make it clear to myself how listening could be useful in this particular situation.	❍	❍	❍	❍
9.	I made myself perceive my current state of mind (being tired, feeling motivated).	❍	❍	❍	❍
10.	I got actively involved in the situation.	❍	❍	❍	❍
11.	I tried to take the speaker's perspective.	❍	❍	❍	❍
12.	I made a conscious effort to focus attention.	❍	❍	❍	❍
13.	I made an effort to understand the structure of the presentation.	❍	❍	❍	❍
14.	I made an effort to identiy my negative attitude and bias.	❍	❍	❍	❍

D. How did you perceice this specific listening situation?

	fully agree	partly agree	partly disagree	fully disagree
1. I felt attracted to the topic.	❍	❍	❍	❍
2. I felt bored by this particular speaker.	❍	❍	❍	❍
3. This topic was important to me personally.	❍	❍	❍	❍
4. I believed that this topic was of little importance in general.	❍	❍	❍	❍
5. I felt, I had insufficient knowledge about this topic.	❍	❍	❍	❍
6. The topic was beyond me.	❍	❍	❍	❍
7. I could focus attention when listening to this topic.	❍	❍	❍	❍
8. I could see a relationship between aspects of this topic and my personal experience in life.	❍	❍	❍	❍
9. I was irritated by the way in which the speaker delivers the presentation.	❍	❍	❍	❍
10. The attitude toward the speaker affected my willingness to listen.	❍	❍	❍	❍
11. I felt rather uncomfortable in his listening situation.	❍	❍	❍	❍
12. The listening situation was disturbed by outside factors (e.g., noise).	❍	❍	❍	❍

Date:_____

Code:_____

Instruction for self-observation during listening

(Pre-questions)

Select a listening situation which you feel is challenging for you because it is mostly new for you and which confronts you with a complex topic that you have not yet studied very deeply. Prior to entering this listening situation, ask yourself some questions for which you expect to find an answer as you listen. List your questions as specifically as possible. Take a moment to reflect about how you perceive the listening situation.

Please note your perceptions on the following aspects:

B. Describe the listening situation which you selected and specify why you find this situation particularly challenging (who is the speaker, what is the context, when and where does it take place?):

Now fill in parts B and C of the self-observation log prior to entering the listening situation. How do you perceive this specific situation? Please indicate to which degree you agree with the statements listed below concerning this situation. You may add further comments on the back of the pages.

B. How do you usually perceive this specific listening situation?

	fully agree	partly agree	partly disagree	fully disagree
1. I feel attracted to the topic.	❍	❍	❍	❍
2. It is important for me to learn something about this particular topic.	❍	❍	❍	❍
3. It is easy for me to understand new information on the topic.	❍	❍	❍	❍
4. I can follow the line of arguments.	❍	❍	❍	❍
5. I believe, I can retain new information rather easily.	❍	❍	❍	❍
6. I understand the outline of the presentation.	❍	❍	❍	❍
7. I can structure my notes.	❍	❍	❍	❍
8. I can see how the information corresponds to what I already know about this topic.	❍	❍	❍	❍
9. I can find an orientation in the presentation.	❍	❍	❍	❍
10. I approach the presentation with critical expectations.	❍	❍	❍	❍
11. I can actively participate in the discussion.	❍	❍	❍	❍
12. I can sustain attention during the presentation.	❍	❍	❍	❍
13. I can actively think about the presentation and its content.	❍	❍	❍	❍
14. I adhere to my own questions while following the presentation.	❍	❍	❍	❍
15. I miss some information because of my biased expectations.	❍	❍	❍	❍
16. I am aware of my knowledge gaps on this topic.	❍	❍	❍	❍

C. List of pre-questions for the selected listening situation:

Specify your pre-questions for this listening situation:

Please fill in part D of the self-observation log after completion of the listening situation.

D. How did you perceive this specific listening situation?

	fully agree	partly agree	partly disagree	fully disagree
1. I felt attracted to the topic.	❍	❍	❍	❍
2. It was important for me to learn something about this particular topic.	❍	❍	❍	❍
3. It was easy for me to understand new information on the topic.	❍	❍	❍	❍
4. I could follow the line of arguments.	❍	❍	❍	❍
5. I believe, I could retain new information rather easily.	❍	❍	❍	❍
6. I understood the outline of the presentation.	❍	❍	❍	❍
7. I could structure my notes.	❍	❍	❍	❍
8. I could see how the information corresponded to what I already knew about this topic.	❍	❍	❍	❍
9. I found an orientation in the presentation.	❍	❍	❍	❍
10. I approached the presentation with critical expectations.	❍	❍	❍	❍
11. I could actively participate in the discussion.	❍	❍	❍	❍
12. I could sustain attention during the presentation.	❍	❍	❍	❍
13. I could actively think about the presentation and its content.	❍	❍	❍	❍
14. I adhered to my own questions while following the presentation.	❍	❍	❍	❍
15. I missed some information because of my biased expectations.	❍	❍	❍	❍
16. I was aware of my knowledge gaps on this topic.	❍	❍	❍	❍

Date:_____

Code:_____

Instruction for self-observation during listening
(elaborations)

Select a listening situation which you feel is challenging for you because it is mostly new for you and which confronts you with a complex topic that you have not yet studied very deeply. Try to elaborate on the information given in the presentation. Think about how this information could become useful for you, how it corresponds to other aspects of your knowledge and how it could have relevance for your life. Take a moment to reflect about how you perceive the listening situation.

Please note your perceptions on the following aspects:

A. Describe the listening situation which you selected and specify why you find this situation particularly challenging (who is the speaker, what is the context, when and where does it take place?):

Now fill in part B of the self-observation log prior to entering the listening situation. How do you perceive this specific situation? Please indicate to which degree you agree with the statements listed below concerning this situation. You may add further comments on the back of the pages.

B. How do you usually perceive this specific listening situation?

		fully agree	partly agree	partly disagree	fully disagree
1.	I can take structured notes.	❍	❍	❍	❍
2.	I can focus attention on the presentation.	❍	❍	❍	❍
3.	I believe that I retain the most important information.	❍	❍	❍	❍
4.	I can follow the presentation easily.	❍	❍	❍	❍
5.	I believe I would not let me disturb by others.	❍	❍	❍	❍
6.	I can actively think about the presentation and its content.	❍	❍	❍	❍
7.	I would not let the personal characteristics of the speaker distract me from the presentation.	❍	❍	❍	❍
8.	During listening, I can think critically about the content of the presentation.	❍	❍	❍	❍
9.	I can see make the connection between the new information and prior knowledge.	❍	❍	❍	❍
10.	I have a clear idea about what about this topic is important to me.	❍	❍	❍	❍
11.	I can actively participate in the discussion.	❍	❍	❍	❍
12.	My own thoughts distract me from what is being said.	❍	❍	❍	❍
13.	I can take detailed notes.	❍	❍	❍	❍
14.	I can summarize what I have heard.	❍	❍	❍	❍

Please fill in parts C and D of the self-observation log after completion of the listening situation.

C. What kinds of elaborative techniques did you use?

D. How did you perceive this specific listening situation?

	fully agree	partly agree	partly disagree	fully disagree
1. I could take structured notes.	❍	❍	❍	❍
2. I could focus attention on the presentation.	❍	❍	❍	❍
3. I believe that I retained the most important information.	❍	❍	❍	❍
4. I could follow the presentation easily.	❍	❍	❍	❍
5. I believe I did not let me disturb by others.	❍	❍	❍	❍
6. I can actively think about the presentation and its content.	❍	❍	❍	❍
7. I did not let the personal characteristics of the speaker distract me from the presentation.	❍	❍	❍	❍
8. During listening, I could think critically about the content of the presentation.	❍	❍	❍	❍
9. I could make the connection between the new information and prior knowledge.	❍	❍	❍	❍
10. I had a clear idea about what about this topic was important to me.	❍	❍	❍	❍
11. I could actively participate in the discussion.	❍	❍	❍	❍
12. My own thoughts distracted me from what was being said.	❍	❍	❍	❍
13. I could take detailed notes.	❍	❍	❍	❍
14. I could summarize what I had heard.	❍	❍	❍	❍